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**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Steindler et al.

Application No.: 10/695,600

Examiner:

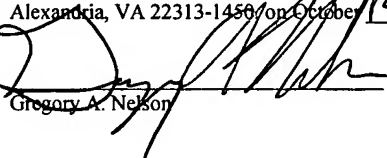
Date Filed: October 28, 2003

Group: 1632

For: ISOLATED MAMMALIAN NEURAL STEM CELLS, METHODS OF MAKING SUCH CELLS AND METHODS OF USING SUCH CELLS

**CERTIFICATE UNDER 37 CFR 1.8(a)**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class mail in an envelope addressed to the Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 19, 2004.

  
Gregory A. Nelson

Mail Stop Amendment  
Commissioner for Patents  
Post Office Box 1450  
Alexandria, VA 22313-1450

Date: October 19, 2004

**INFORMATION DISCLOSURE STATEMENT**

Sir:

Pursuant to the Duty to Disclose under 37 C.F.R. §1.56, Applicants hereby disclose information that may be relevant to the Examiner's consideration of the above-identified application and the patentability of its claims.

In accordance with Rules 56, 97, and 98 of the Rules of Practice in Patent Cases (37 C.F.R. §§ 1.56, 1.97, and 1.98), Form PTO/SB/08B of references cited therein are submitted for consideration by the Examiner. While the references provided in this Information Disclosure Statement may be material to patentability pursuant to 37 C.F.R. § 1.56, it is not intended to constitute an admission that any reference referred to herein is prior art for this invention unless specially designated as such. Also, in accordance with 37 C.F.R. §1.97(g), the filing of this

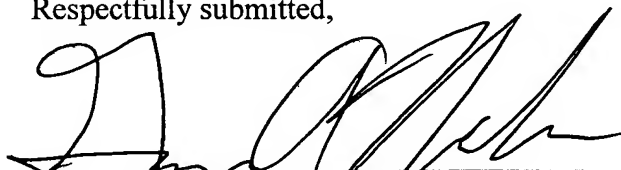
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Filed: October 28, 2003  
Group Art Unit: 1632  
For: ISOLATED MAMMALIAN NEURAL STEM CELLS,  
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OF USING SUCH CELLS

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Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 C.F.R. § 1.56(a) exists.

This Information Disclosure Statement is being filed before the issuance of a first office action on the merits of the application (37 C.F.R. 1.97(b)(3)); therefore, no fee is believed to be due. However, if any fee is due, the Commissioner is authorized to charge any such fee and any additional fees due or credit any overpayment to Deposit Account No. 50-0951.

Respectfully submitted,



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Docket No. 7203-8





PTO/SB/08B (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/695,600
Filing Date	10/28/2003
First Named Inventor	Steindler et al.
Art Unit	1632
Examiner Name	
Attorney Docket Number	7203-8

Sheet	1	of	4
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**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		ALTMAN, J. "Are New Neurons Formed in the Brains of Adult Mammals?" Science, 135:1127-1128, 1962.	
		ALVAREZ-BUYLLA et al., "Neuronal Stem Cells in the Brain of Adult Vertebrates," Stem Cells 13:263-272, 1995.	
		ANDERSON et al., "Neurogenesis in Adult Vertebrate Spinal Cord in Situ and in Vitro: A New Model System," Ann. N. Y. Acad. Sci., 457:213-233, 1985.	
		BRUSTEL et al., "Host-Guided Migration Allows Targeted Introduction of Neurons into the Embryonic Brain," Neuron, 15:1275-1285, 1995.	
		CATTANEO et al., "Proliferation and Differentiation of Neuronal Stem Cells Regulated by Nerve Growth Factor," Nature, 347:762-765, 1990.	
		CHIASOON et al., "Adult Mammalian Forebrain Ependymal and Subependymal Cells Demonstrate Proliferative potential, But Only Subependymal Cells Have Neural Stem Cell Characteristics," J. Neurosci., 19:4462-4471, 1999.	
		DOETSCH et al., "Subventricular Zone Astrocytes Are Neural Stem Cells in the Adult Mammalian Brain," Cell, 97:703-716, 1999.	
		FILLMORE et al., "A Novel Method to Culture the Subependymal Zone of the Adult Rodent Reveals Immature Neurons That Prefer an Environment Rich in Extracellular Matrix Molecules," Neurosci Abs., 21:1528, 1996.	
		FRIEDRICH et al., Promotor Traps in Embryonic Stem Cells: A Genetic Screen to Identify and Mutate Developmental Genes in Mice," Genes Dev., 5:1513-1523, 1991.	
		GAGE et al., "Isolation, Characterization and Use of Stem Cells From The CNS," Ann. Rev. Neurosci., 18:159-192, 1995.	

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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Sheet 2 of 4	Attorney Docket Number	7203-8	

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		GATES et al., "Astrocytes and Extracellular Matrix Following Intracerebral Transplantation of Embryonic Ventral Mesencephalon or Lateral Ganglionic Eminence," Neuroscience, 74:579-597, 1996.	
		GATES et al., "Cell and Molecular Analysis of the Developing and Adult Mouse Subventricular Zone of the Cerebral Hemispheres," J. Comp. Neurol., 361:249-266, 1995.	
		GRITTI et al., "Multipotential Stem Cells From the Adult Mouse Brain Proliferate and Self-Renew in Response to Basic Fibroblast Growth Factor," J. Neurosci., 16:1091-1100, 1996.	
		HERINGTON, A., "Effect of Disulfide-Bond Reducing Agents on the Specific Binding of Growth Hormone to Microsomal Membrane Preparations from Rabbit Liver," Biochem. Pharmacol., 35(8):1359-1364, 1986.	
		JANKOVSKI et al., "Subventricular Zone-Olfactory Bulb Migratory Pathway in the Adult Mouse: Cellular Composition and Specificity as Determined by Heterochronic and Heterotopic Transplantation," J. Comp. Neurol., 371:376-396, 1996.	
		JOHANSSON et al., "Identification of a Neural Stem Cell in the Adult Mammalian Central Nervous System," Cell 96:25-34, 1999.	
		KIRSCHENBAUM et al., "Brain-Derived Neurotrophic Factor Promotes the Survival of Neurons Arising from the Adult Rat Forebrain Subependymal Zone," Proc. Nat'l. Acad. Sci., USA, 92:210-214, 1995.	
		KIRSCHENBAUM et al., "In Vitro Neuronal Production and Differentiation by Precursor Cells Derived from the Adult Human Forebrain," Cerebral Cortex, 6:576-589, 1994.	
		KLEIN et al., "Tenascin Is a Cytoadhesive Extracellular Matrix Component Of The Human Hematopoietic Microenvironment," J. Cell Bio., 123:1027-1035, 1993.	
		KUKEKOV et al., "A Nestin-Negative Precursor Cell From The Adult Mouse Brain Gives Rise To Neurons And Glia," Glia, 21:399-407, 1997.	

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		LAROCHELLE et al., "Identification of Primitive Human Hematopoietic Cells Capable of Repopulating NOD/SCID Mouse Bone Marrow: Implications for Gene Therapy," Nature Med., 2:1329-1337, 1996.	
		LAYWELL et al., "Brain Marrow II: In Vivo and in Vitro Studies of Neurogenesis in the Adult Human Subependymal Zone and Hippocampus," Neurosci Abs., 232:297, 1997.	
		LEVINSON et al., "Both Oligodendrocytes and Astrocytes Develop from Progenitors in the Subventricular Zone of Postnatal Rat Forebrain," Neuron, 10:302-212, 1993.	
		LUSKIN, "Restricted Proliferation and Migration of Postnatally Generated Neurons Derived from the Forebrain Subventricular Zone," Neuron, 11:173-189, 1993.	
		MENEZES et al., "Expression of Neuron-Specific Tubulin Defines a Novel Population in the Proliferative Layers of the Developing Telencephalon," J. Neurosci., 14:5399-5416, 1994.	
		MOLOWNY et al., "Reactive Neurogenesis During Regeneration of the Lesioned Medical Cerebral Cortex of Lizards," Neuroscience, 68:823-836, 1995.	
		MORSHEAD et al., "Neural Stem Cells in the Adult Mammalian Forebrain: A Relatively Quiescent Subpopulation of Subependymal Cells," Neuron, 13:1071-1082, 1994.	
		POTTEN et al., "Stem Cells: Attributes, Cycles, Spirals, Pitfalls and Uncertainties Lessons for and From the Crypt," Development, 110:1001-1020, 1990.	
		REYNOLDS et al., "Clonal and Population Analyses Demonstrate That an EGF-Responsive Mammalian Embryonic CNS Precursor is a Stem Cell," Dev. Biol., 175:1-13, 1996.	
		REYNOLDS et al., "Generation of Neurons and Astrocytes from Isolated Cells of the Adult Mammalian Central Nervous System," Science, 255:1707-1710, 1992.	

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		RICHARDS et al., "De Novo Generation of Neuronal Cells from the Adult Mouse Brain," Proc. Natl. Acad. Sci. USA, 89:8591-8595, 1992.	
		STEINDLER et al., "The Subependymal Zone: 'Brain Marrow'," Prog. Brain Res., 108:349-363, 1996.	
		THOMAS et al., "Young Neurons From the Adult Mouse Subependymal Zone Proliferate and Migrate Along an Astrocyte, Extracellular Matrix-Rich Pathway," Glia:17:1-14, 1996.	
		VESCOVI et al., "bFGF Regulates the Proliferative Fate of Unipotent (Neuronal) and Bipotent (Neuronal/Astroglial) EGF-Generated CNS Progenitor Cells," Neuron, 11:951-966, 1993.	
		WEISS et al., "Multipotent CNS Stem Cells are Present in the Adult Mammalian Spinal Cord and Ventricular Neuroaxis," J. Neurosci., 16:7599-7609, 1996.	
		WEISS et al., "Is There a Neural Stem Cell in the Mammalian Forebrain?" Trends Neurosci., 19:387-393, 1996.	
		YODER et al., "Matrix molecule Interactions with Hematopoietic Stem Cells," Exp. Hematol., 23:961-967, 1995.	
		ZERLIN et al., "Early Patterns of Migration, Morphogenesis, and Intermediate Filament Expression of Subventricular Zone Cells in the Postnatal Rat Forebrain." J. Neurosci., 15:7238-7249, 1995.	

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